BRUHATH BANGALORE MAHANAGARA PALIKE

Name of the Agency : **Technical Manager,** KRIDL, Bangalore.

Name of the Work : Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.

Estimate Cost :

QUALITY CONTROL REPORTS TO

ASST. EXECUTIVE ENGINEER
Shettyhalli Sub Division,
BBMP, Bangalore.

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QUALITY CONTROL REPORTS FOR

GRANUALAR SUB BASE (GSB)

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Job No.: CTCE/BBMP/KRIDL/W.No.12/GSB-1/GR/2015-16 Date : 22.04.2015

GRADATION FOR GSB-I (CLOSE GRADED)
IS: 2720 (Part 4)

Customer : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of work : Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.

Reference : BBMP/AEE/SSD/DZ/PR/2015-16

Date of Testing : 22.04.2015

Sample Source : GSB Mix Plant Bangalore. **Oven Dry Wt (gm) :** 25600

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
75.0	0	0	0.00	0	100
53.0	985	985	3.85	96.15	80-100
26.50	6230	7215	28.18	71.82	55-90
9.50	4685	11900	46.48	53.52	35-65
4.75	3140	15040	58.75	41.25	25-55
2.36	2365	17405	67.99	32.01	20-40
0.425	4585	21990	85.90	14.10	10-25
0.075	2350	24340	95.08	4.92	3-10
PAN	1260				
Total	25600				

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading I

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
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NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KRIDL/W.No.12/GSB-1/AL/2015-16 Date : 22.04.2015

ATTERBERG LIMITS TEST FOR GSB (CLOSE GRADED)
IS : 2720 (Part - 5)

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of work : Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.

Reference : BBMP/AEE/SSD/DZ/PR/2015-16

Date of Testing : 22.04.2015

As per MORTH Table : 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	23.50	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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AE-12
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QUALITY CONTROL REPORTS FOR

WET MIX MACADAM (WMM)

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KRIDL/W.No.12/WMM/Gradation/2015-16

28.04.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.

Reference : BBMP/AEE/SSD/DZ/PR/2015-16

Date of Testing : 28.04.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **25700**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	1025	1025	4.0	96.0	95-100
22.4	5450	6475	25.2	74.8	60-80
11.2	5765	12240	47.6	52.4	40-60
4.75	4360	16600	64.6	35.4	25-40
2.36	3475	20075	78.1	21.9	15-30
0.600	2165	22240	86.5	13.5	8-22
0.075	2240	24480	95.3	4.7	0-8

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Job No.: CTCE/BBMP/KRIDL/W.No.12/WMM/AIV/2015-16 28.04.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	28.04.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	384.5	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	83	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301.5	
4	Aggregate Impact value = percent fines	22.22	21.59	
	100* (W_2/W_1)%			**21.90**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

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AE-12
ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
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Job No.: CTCE/BBMP/KRIDL/W.No.12/WMM/S-T/2015-16 28.04.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	28.04.2015

Result : Flakiness Index = **12.85%**

Elongation Index = **13.47%**

Result : Combined Flakiness & Elongation index **26.32%**

Comments:

→ Maximum allowable Flakinee & Elongation Index for Wet Mix Macadam is 30%

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
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ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

28/4

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QUALITY CONTROL REPORTS FOR

BITUMINOUS MACADAM

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NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KRIDL/W.No.12/CSR.05/813e/BM(QB)/2015-16 04.05.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

* CUSTOMER	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* AGENCY	:	**Technical Manager,** KRIDL, Bangalore.
* NAME OF PROJECT	:	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	:	BBMP/AEE/SSD/DZ/PR/2015-16
SAMPLE ID	:	Bitumen
SAMPLE RECEIVED ON	:	04.05.2015
DATE OF TESTING	:	04.05.2015

The results of the tests conducted on the bitumen sample for Bituminous Macadam are as follows:

Sl.No	Description	Technical Reference	Test Result	Requirement as per IS: 73-2013
1	Penetration at 25°C, 100g, 5 Sec 1/10 mm	IS: 1203-1978 (RA-2009)	62.0	60 to 70
2	Softening point, °C	IS: 1205-1978 (RA-2009)	49.0	Min. 45
3	Ductility at 27°C, cm	IS: 1208-1978 (RA-2009)	100 >	Min. 50
4	Flash Point, °C	IS: 1209-1978 (RA-2009)	302	Min. 220

*Information is furnished by the Customer/Representative.

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AE - 12
ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರವರ
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
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Job No.: CTCE/BBMP/KRIDL/W.No.12/BM/AIV/2015-16 04.05.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Source / Location	Hotmix Plant, Bangalore
Type of Mix	Bituminous Macadam
Date of Testing	04.05.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	388	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	91	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294	301	
4	Aggregate Impact value = percent fines	23.64	22.42	
	100* (W_2/W_1)%			**23.03**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

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ಎಸ್.ಎಂ. ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BM/Shape.T/2015-16 : 04.05.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Project	: Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: BBMP/AEE/SSD/DZ/PR/2015-16
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminious Macadum
Date of Testing	: 04.05.2015

Flakiness Index = **12.58%**

Elongation Index = **13.26%**

Result : Combined Flakiness & Elongation index **25.84%**

Comments:

→ Maximum allowable Flakinee & Elongation Index for Bituminous Macadam is 30%

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ಬೃಪತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
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Job No.: CTCE/BBMP/KRIDL/W.No.12/BM/Shape.T/2015-16 : 04.05.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Project	: Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: BBMP/AEE/SSD/DZ/PR/2015-16
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminious Macadum
Date of Testing	: 04.05.2015

Flakiness Index = **11.96%**

Elongation Index = **13.54%**

Result : Combined Flakiness & Elongation index **25.50%**

Comments:

→ Maximum allowable Flakinee & Elongation Index for Bituminous Macadam is 30%

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BM/Stripping/2015-16 07.05.2015

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Type of Mix	Bituminous Macadam
Date of Testing	07.05.2015

Type of binder : 60/70
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.4	3.27	96.73
2	3.1		
3	3.3		

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Macadam is 95%

Note:

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Building & Highway Material Testing Laboratory

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BM/Sp_Wa/2015-16 07.05.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Source / Location	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	07.05.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2021	2022	2020	
2	Weight of basket suspended in water	W_2 g	750	750	750	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1271	1272	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2023	2025	2027	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	752	753	757	
6	Weight of oven dried aggregate	W_4 g	2008	2012	2011	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.670	2.672	2.657	2.663
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.725	2.719	2.714	2.719
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.75%	0.65%	0.80%	0.77%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

Note:

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BM/Bitumen/2015-16 07.05.2015

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MACADAM MIX

As Per IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF PROJECT	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2015-16
SAMPLE I/D	Road from Gatepalya to Chikkabanavara Road W.No.12
DATE OF TESTING	07.05.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	482.5	482
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	17.5	18.00
7. Bitumen content in %	3.50	3.60
8. Average	**3.55**	

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GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX

As Per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF PROJECT	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2015-16
SAMPLE I/D	Road from Gatepalya to Chikkabanavara Road W.No.12
DATE OF TESTING	07.05.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	32.25	6.68	6.68	93.32	90-100
13.2	123.4	25.58	32.26	67.74	56-88
4.75	227.9	47.23	79.49	20.51	16-36
2.36	62.58	12.97	92.46	7.54	4-19
0.3	10.47	2.17	94.63	5.37	2-10
0.075	3.58	0.74	95.37	4.63	0-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	35.28	7.32	7.32	92.68	90-100
13.2	123.6	25.64	32.96	67.04	56-88
4.75	227.4	47.18	80.14	19.86	16-36
2.36	56.45	11.71	91.85	8.15	4-19
0.3	9.56	1.98	93.84	6.16	2-10
0.075	5.87	1.22	95.05	4.95	0-8

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BM/Agg.G/2015-16 07.05.2015

Aggregate Gradation Test

IS : 2386 Part I

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Sample ID	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	07.05.2015

Total Weight of Sample: 5300 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	415	7.83	7.83	92.17	90-100	
13.2	1632	30.79	38.62	61.38	56-88	
4.75	1487	28.06	66.68	33.32	16-36	
2.36	928	17.51	84.19	15.81	4-19	
0.3	389	7.34	91.53	8.47	2-10	
0.075	206	3.89	95.42	4.58	0-8	

Total Weight of Sample: 5450 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	285	5.23	5.23	94.77	90-100	
13.2	1748	32.07	37.30	62.70	56-88	
4.75	1563	28.68	65.98	34.02	16-36	
2.36	857	15.72	81.71	18.29	4-19	
0.3	526	9.65	91.36	8.64	2-10	
0.075	154	2.83	94.18	5.82	0-8	

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T-2377

Job No.: CTCE/BBMP/KRIDL/W.No.12/CSR.05/813e/BC(QB)/2015-16 05.05.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

* CUSTOMER	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* AGENCY	:	**Technical Manager,** KRIDL, Bangalore.
* NAME OF PROJECT	:	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	:	BBMP/AEE/SSD/DZ/PR/2015-16
SAMPLE ID	:	Bitumen
SAMPLE RECEIVED ON	:	05.05.2015
DATE OF TESTING	:	05.05.2015

The results of the tests conducted on the Bitumen sample for Bituminous Concrete are as follows:

Sl.No	Description	Technical Reference	Test Result	Requirement as per IS: 73-2013
1	Penetration at 25^{0}C, 100g, 5 Sec 1/10 mm	IS: 1203-1978 (RA-2009)	67.0	60 to 70
2	Softening point, ^{0}C	IS: 1205-1978 (RA-2009)	47.0	Min. 45
3	Ductility at 27^{0}C, cm	IS: 1208-1978 (RA-2009)	100 >	Min. 50
4	Flash Point, ^{0}C	IS: 1209-1978 (RA-2009)	292	Min. 220

*Information is furnished by the Customer/Representative.

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QUALITY CONTROL REPORTS FOR

BITUMINOUS CONCRETE

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Job No.: CTCE/BBMP/KRIDL/W.No.12/CSR.05/813e/BC(QB)/2015-16 05.05.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

* CUSTOMER	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* AGENCY	:	**Technical Manager,** KRIDL, Bangalore.
* NAME OF PROJECT	:	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	:	BBMP/AEE/SSD/DZ/PR/2015-16
SAMPLE ID	:	Bitumen
SAMPLE RECEIVED ON	:	05.05.2015
DATE OF TESTING	:	05.05.2015

The results of the tests conducted on the Bitumen sample for Bituminous Concrete are as follows:

Sl.No	Description	Technical Reference	Test Result	Requirement as per IS: 73-2013
1	Penetration at 25^{0}C, 100g, 5 Sec 1/10 mm	IS: 1203-1978 (RA-2009)	65.0	60 to 70
2	Softening point, ^{0}C	IS: 1205-1978 (RA-2009)	51.0	Min. 45
3	Ductility at 27^{0}C, cm	IS: 1208-1978 (RA-2009)	100 >	Min. 50
4	Flash Point, ^{0}C	IS: 1209-1978 (RA-2009)	294	Min. 220

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BC/AIV/2015-16 05.05.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	05.05.2015

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	21.82	22.62	**22.22**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	05.05.2015

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	384	378	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	83	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	293	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	21.61	22.49	**22.05**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	05.05.2015

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	388	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	81	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	307	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	21.93	20.88	**21.40**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
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Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	05.05.2015

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	386	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	296	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	21.76	22.51	**22.14**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BC/AIV/2015-16 05.05.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	05.05.2015

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	384	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	89	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	295	296	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	23.18	22.51	22.85

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

Note:

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
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ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
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05.05.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	05.05.2015

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	296	298	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	22.31	22.60	**22.45**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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W-12

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BC/Shape.T/2015-16 : 06.05.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Project	: Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: BBMP/AEE/SSD/DZ/PR/2015-16
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminous Concrete
Date of Testing	: 06.05.2015

Result : Flakiness Index = **11.87%**

Elongation Index = **13.63%**

Result : Combined Flakiness & Elongation index **25.50%**

Note:

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BC/Shape.T/2015-16 : 06.05.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Project	: Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: BBMP/AEE/SSD/DZ/PR/2015-16
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminous Concrete
Date of Testing	: 06.05.2015

Result : Flakiness Index = **12.54%**

Elongation Index = **13.69%**

Result : Combined Flakiness & Elongation index **26.23%**

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Project	: Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: BBMP/AEE/SSD/DZ/PR/2015-16
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminous Concrete
Date of Testing	: 06.05.2015

Result : Flakiness Index = **11.82%**

Elongation Index = **13.64%**

Result : Combined Flakiness & Elongation index **25.46%**

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Project	: Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: BBMP/AEE/SSD/DZ/PR/2015-16
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminous Concrete
Date of Testing	: 06.05.2015

Result : Flakiness Index = **12.56%**

Elongation Index = **13.84%**

Result : Combined Flakiness & Elongation index **26.40%**

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Project	: Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: BBMP/AEE/SSD/DZ/PR/2015-16
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminous Concrete
Date of Testing	: 06.05.2015

Result : Flakiness Index = **11.92%**

Elongation Index = **13.67%**

Result : Combined Flakiness & Elongation index **25.59%**

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Project	: Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: BBMP/AEE/SSD/DZ/PR/2015-16
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminous Concrete
Date of Testing	: 06.05.2015

Result : Flakiness Index = **12.48%**

Elongation Index = **13.77%**

Result : Combined Flakiness & Elongation index **26.25%**

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BC/Stripping/2015-16 08.05.2015

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Type of Mix	Bituminous Concrete
Date of Testing	08.05.2015

Type of binder : 60/70
Percentage of binder used : 5.00% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.00 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.2	3.30	96.70
2	3.3		
3	3.4		

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BC/Sp_Wa/2015-16 09.05.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Type of Mix	Bituminous Concrete
Date of Testing	09.05.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2020	2024	2021	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1265	1269	1266	
4	Weight of saturated surface dry aggregate in air	W_3 g	2010	2016	2012	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	745	747	746	
6	Weight of oven dried aggregate	W_4 g	1996	2001	1997	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.679	2.679	2.677	2.678
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.731	2.734	2.732	2.732
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.70%	0.75%	0.75%	0.73%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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JobNo: CTCE/BBMP/KRIDL/W.No.12/BC/Bitumen/2015-16 08.05.2015

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF PROJECT	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2015-16
SAMPLE I/D	Road from Gatepalya to Chikkabanavara Road W.No.12
DATE OF TESTING	08.05.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	473
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	27.00
7. Bitumen content in %	5.00	5.40
8. Average	**5.20**	

Note:

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JobNo: CTCE/BBMP/KRIDL/W.No.12/BC/Bitumen/2015-16 08.05.2015

GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

AS PER IS2386 & IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF PROJECT	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2015-16
SAMPLE I/D	Road from Gatepalya to Chikkabanavara Road W.No.12
DATE OF TESTING	08.05.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	45.23	9.52	9.52	90.48	79-100
9.5	35.16	7.40	16.92	83.08	70-88
4.75	72.56	15.28	32.20	67.80	53-71
2.36	88.52	18.64	50.84	49.16	42-58
1.18	63.2	13.31	64.14	35.86	34-48
0.6	38.52	8.11	72.25	27.75	26-38
0.3	32.16	6.77	79.02	20.98	18-28
0.15	28.15	5.93	84.95	15.05	12-20
0.075	32.25	6.79	91.74	8.26	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	44.89	9.49	9.49	90.51	79-100
9.5	40.12	8.48	17.97	82.03	70-88
4.75	74.25	15.70	33.67	66.33	53-71
2.36	70.15	14.83	48.50	51.50	42-58
1.18	71.2	15.05	63.55	36.45	34-48
0.6	41.26	8.72	72.28	27.72	26-38
0.3	33.64	7.11	79.39	20.61	18-28
0.15	26.14	5.53	84.92	15.08	12-20
0.075	36.14	7.64	92.56	7.44	4-10

Note:

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CIVIL-TECH CONSULTANTS AND ENGINEERS

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NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JobNo: CTCE/BBMP/KRIDL/W.No.12/BC/Bitumen/2015-16 09.05.2015

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF PROJECT	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2015-16
SAMPLE I/D	Road from Gatepalya to Chikkabanavara Road W.No.12
DATE OF TESTING	09.05.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	473.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	26.50
7. Bitumen content in %	5.20	5.30
8. Average	**5.25**	

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

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JobNo: CTCE/BBMP/KRIDL/W.No.12/BC/Bitumen/2015-16 09.05.2015

GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

AS PER IS2386 & IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF PROJECT	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2015-16
SAMPLE I/D	Road from Gatepalya to Chikkabanavara Road W.No.12
DATE OF TESTING	09.05.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	58.63	12.37	12.37	87.63	79-100
9.5	35.21	7.43	19.80	80.20	70-88
4.75	70.45	14.86	34.66	65.34	53-71
2.36	65.85	13.89	48.55	51.45	42-58
1.18	47.52	10.03	58.58	41.42	34-48
0.6	54.56	11.51	70.09	29.91	26-38
0.3	35.62	7.51	77.60	22.40	18-28
0.15	26.53	5.60	83.20	16.80	12-20
0.075	45.52	9.60	92.80	7.20	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	51.23	10.82	10.82	89.18	79-100
9.5	43.96	9.28	20.10	79.90	70-88
4.75	71.45	15.09	35.19	64.81	53-71
2.36	60.25	12.72	47.92	52.08	42-58
1.18	69.52	14.68	62.60	37.40	34-48
0.6	36.52	7.71	70.31	29.69	26-38
0.3	33.25	7.02	77.33	22.67	18-28
0.15	31.26	6.60	83.94	16.06	12-20
0.075	42.15	8.90	92.84	7.16	4-10

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BC/Agg/2015-16 08.05.2015

Aggregate Gradation Test

IS : 2386 Part I

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	08.05.2015

Total Weight of Sample: **5300** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	612	11.55	11.55	88.45	79 - 100	
9.5	482	9.09	20.64	79.36	70 - 88	
4.75	632	11.92	32.57	67.43	53 - 71	
2.36	521	9.83	42.40	57.60	42 - 58	
1.18	633	11.94	54.34	45.66	34 - 48	
0.600	498	9.40	63.74	36.26	26 - 38	
0.300	543	10.25	73.98	26.02	18 - 28	
0.150	431	8.13	82.11	17.89	12 - 20	
0.075	544	10.26	92.38	7.62	4 - 10	

Total Weight of Sample: **4800** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	615	12.81	12.81	87.19	79 - 100	
9.5	470	9.79	22.60	77.40	70 - 88	
4.75	633	13.19	35.79	64.21	53 - 71	
2.36	510	10.63	46.42	53.58	42 - 58	
1.18	638	13.29	59.71	40.29	34 - 48	
0.600	513	10.69	70.40	29.60	26 - 38	
0.300	407	8.48	78.88	21.13	18 - 28	
0.150	387	8.06	86.94	13.06	12 - 20	
0.075	325	6.77	93.71	6.29	4 - 10	

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Job No.: CTCE/BBMP/KRIDL/W.No.12/BC/Agg/2015-16 09.05.2015

Aggregate Gradation Test

IS : 2386 Part I

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Project	Improvements to road from Shettyhalli Gatepalya to Chikkabanavara Road in Ward No.12, Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	09.05.2015

Total Weight of Sample: **5350** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	518	9.68	9.68	90.32	79 - 100	
9.5	543	10.15	19.83	80.17	70 - 88	
4.75	710	13.27	33.10	66.90	53 - 71	
2.36	631	11.79	44.90	55.10	42 - 58	
1.18	632	11.81	56.71	43.29	34 - 48	
0.600	658	12.30	69.01	30.99	26 - 38	
0.300	630	11.78	80.79	19.21	18 - 28	
0.150	329	6.15	86.93	13.07	12 - 20	
0.075	401	7.50	94.43	5.57	4 - 10	

Total Weight of Sample: **4850** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	616	12.70	12.70	87.30	79 - 100	
9.5	471	9.71	22.41	77.59	70 - 88	
4.75	635	13.09	35.51	64.49	53 - 71	
2.36	511	10.54	46.04	53.96	42 - 58	
1.18	639	13.18	59.22	40.78	34 - 48	
0.600	512	10.56	69.77	30.23	26 - 38	
0.300	405	8.35	78.12	21.88	18 - 28	
0.150	385	7.94	86.06	13.94	12 - 20	
0.075	328	6.76	92.82	7.18	4 - 10	

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